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(पहला पुनरीक्षण)

Indian Standard

CLASSIFICATION OF MANGANESE ORE, FERRUGINOUS MANGANESE ORE, SILICEOUS MANGANESE ORE, DIOXIDE MANGANESE ORE AND MANGANIFERROUS IRON

(First Revision)

ICS 73.060.20

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NEW DELHI 110002

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Price Group 1

Ores and Raw Materials Sectional Committee, MTD 13

FOREWORD

This Indian Standard (First Revision) was adopted by Bureau of Indian Standards, after the draft finalized by the Ores and Raw Materials Sectional Committee had been approved by the Metallurgical Engineering Division Council.

This standard was originally published in 1986. A lot of developments have taken place in the manganese ore industry and trade since then. In this revision, limits of Fe, SiO_2 and MnO_2 in ferruginous manganese ore, siliceous manganese ore and manganese ore (Chemical grade) have been raised.

The classification in this standard is based on chemical/mineralogical composition of the ores and it distinguishes manganese ore from manganese bearing iron ore.

The size specification has not been considered in this standard as same will vary according to the contractual terms and the specifications enumerated in the contract agreements.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

CLASSIFICATION OF MANGANESE ORE, FERRUGINOUS MANGANESE ORE, SILICEOUS MANGANESE ORE, DIOXIDE MANGANESE ORE AND MANGANIFERROUS IRON

(First Revision)

1 SCOPE

This standard covers the definition of manganese ore, ferruginous manganese ore, siliceous manganese ore and manganiferrous iron ore, based on manganese, iron and silica contents. This also includes chemical grade of manganese ore distinguished on the basis of the manganese dioxide content.

2 REFERENCES

The follwing standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
1387 : 1993	General requirements for the supply of metallurgical materials (*second revision*)
1449 : 1976	Methods of sampling of manganese ore (*first revision*)

3 SUPPLY OF MATERIAL

General requirements relating to the supply of manganese ore shall be as laid down in IS 1387.

4 GRADE DESIGNATION

4.1 Manganese ores and manganese bearing iron ores shall be classified as follows:

a) Manganese ore,
b) Ferruginous manganese ore,
c) Siliceous manganese ore,
d) Dioxide manganese ore, and
e) Manganiferrous iron ore.

5 CLASSIFICATION REQUIREMENTS

5.1 For the purpose of this standard, ore containing 35 percent manganese or more shall be classified as manganese ore.

5.2 Manganese ores shall be designated as manganese ore (Chemical grade), ferruginous manganese ore or siliceous manganese ore depending upon MnO_2, Fe and silica content, respectively.

5.3 Ores containing low manganese but high Fe shall be designated as manganiferrous iron ores.

5.4 Details in respect of **5.1**, **5.2** and **5.3** are given in Table 1.

6 SAMPLING

Representative samples of manganese ore shall be drawn according to the scheme of sampling given in IS 1449.

Table 1 Classification of Manganese Ore, Ferruginous Manganese Ore, Silicious Manganese Ore and Manganiferrous Iron Ore

(*Clause* 5.4)

Sl No.	Type	Chemical Analysis, Percent				
		Mn (3)	Fe (4)	SiO_2 (5)	MnO_2 (6)	Fe + Mn (7)
(1)	(2)					
i)	Manganese ore	35 and above	—	—	—	—
ii)	Ferruginous manganese ore	Below 35 and up to 25	13 and above	—	—	48 *Min*
iii)	Silicious manganese ore	Below 35 and up to 25	—	20 *Min*	—	—
iv)	Manganese ore (Chemical grade)	43.5 *Min*	8 *Max*	—	62 *Min*	—
v)	Manganese ore (Dioxide grade)	—	8 *Max*	—	72 *Min*	—
vi)	Manganiferrous iron ore	Below 25 and up to 10	Below 48 and up to 30	—	—	55 *Min*

NOTE — M_nO_2 for dioxide grade manganese ore include assemblage like pyrolucite and psillomelane.

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